

## CLAIMS

1. An intermediate processing apparatus comprising:
  - a call processing part;
  - a voice data processing unit;
  - 5 a status management part for maintaining the status of said call processing part and said voice data processing unit; and
  - a control part which controls said call processing part and said voice data processing unit, compares a state enough to execute a request from an external application program with the state maintained by said status
  - 10 management part, and if both disaccord, controls said call processing part and said voice data processing part to perform processing for matching both states with each other.
2. The intermediate processing apparatus according to claim 1,
  - 15 wherein said control part controls said voice data processing part to store received voice data in an external voice storage unit on the basis of the request from the application program.
3. An exchange comprising:
  - 20 a call control interface for sending information to a call processing part of an intermediate processing apparatus; and
  - a voice interface for sending information to a voice data processing part of the intermediate processing apparatus including
  - the voice data processing part,
  - 25 a status management part for maintaining the status of said

call processing part and said voice data processing part, and

a control part which controls said call processing part and said voice data processing unit, compares a state enough to execute a request from an external application program with the state maintained by said

5 status management part, and if both disaccord, controls said call processing part and said voice data processing part to perform processing for matching both states with each other.

4. The intermediate processing apparatus according to claim 2,  
10 wherein when a general telephone terminal, a portable telephone terminal or a multi-functional terminal including a data communication terminal part connected to a data network and a telephone terminal part connected to a telephone network is call-connected with an extension telephone terminal by means of said exchange, and when said intermediate processing apparatus  
15 transmits a connection notification to the application program, and the application program issues a call recording request to said intermediate processing apparatus on the basis of the connection notification, said control part compares the request from the application program with the status maintained by said status management part to judge whether the request is  
20 executable, and if it is executable, sets a voice path between said voice data processing unit and said voice storage unit, or if it is not executable, controls said call processing part and said voice data processing part to perform processing until the request become executable so as to set the voice path between said voice data processing unit and said voice storage unit,  
25 whereby voice data received via said exchange is transmitted to said voice

storage unit through the voice path.

5. The intermediate processing apparatus according to claim 2,  
wherein when a call from a general telephone terminal, a portable telephone  
5 terminal, a multi-functional terminal or an extension telephone terminal  
arrives at said exchange, and when said intermediate processing apparatus  
transmits a call arrival notification to the application program, and the  
application program issues a playback request based on the call arrival  
notification to said intermediate processing apparatus so that a user of the  
10 terminal can listen to a playback of voice data stored in said voice storage  
unit, said control part compares the request from the application program  
with the status maintained by said status management part to judge whether  
the request is executable, and if it is executable, sets a voice path between  
said voice data processing unit and said voice storage unit, or if it is not  
15 executable, controls said call processing part and said voice data processing  
part to perform processing until the request become executable so as to set  
the voice path between said voice data processing unit and said voice  
storage unit, whereby voice data is transmitted to said terminal, from which a  
call has arrived at said exchange, through the voice path, said voice data  
20 processing part and said exchange.

6. The intermediate processing apparatus according to claim 2,  
wherein when the application program issues a playback request to said  
intermediate processing apparatus so that a user can listen, on a required  
25 terminal, to voice data stored in said voice storage unit, said control part

compares the request from the application program with the status maintained by said status management part to judge whether the request is executable, and if it is executable, sets a voice path between said voice data processing unit and said voice storage unit, or if it is not executable, controls  
5 said call processing part and said voice data processing part to perform processing until the request become executable so as to set the voice path between said voice data processing unit and said voice storage unit, whereby voice data is transmitted to a general telephone terminal, a portable telephone terminal, a multi-functional terminal or an extension telephone  
10 terminal, with which said exchange is connected, through the voice path, said voice data processing part and said exchange.

7. The exchange according to claim 3, wherein an external call supervising/processing unit for supervising call processing requests from  
15 two or more application programs is connected to said call control interface, and a voice data processing part of each intermediate apparatus is directly connected to said voice interface.

8. A telephone voice control system comprising: a multi-functional  
20 terminal including a data communication terminal part connected to a data network and a telephone terminal part connected to a telephone network; an information notification unit for notifying information to the data network; a circuit switching unit of an exchange, which obtains a caller number from the telephone network at arrival of a call; a voice storage unit for storing voice  
25 data received through said exchange; and an application program which

controls storage and reading of the voice data into and from said voice storage unit, wherein said information notification unit notifies the data network of the information requested by said application program, and when said multi-functional terminal that has obtained the information through the data network makes a request to the exchange through the telephone network for the transmission of voice data, the voice data is selected from among voice data stored in the voice storage unit according to the caller number obtained at said circuit switching unit so that the voice data will be provided to said multi-functional terminal.

10

9. The telephone voice control system according to claim 8 further comprising an intermediate processing unit provided with a call processing part, a voice processing part, a status management part for maintaining the status of said call processing part and said voice processing part, and a control part for controlling said call processing part and said voice processing part, wherein when said application program requests said intermediate processing unit to store and read voice data, said control part of said intermediate processing unit compares a state enough to execute the request from said application program with the status maintained by said status management part, and if both disaccord, requests said call processing part and said voice processing part to perform processing for matching both states with each other.

15

20

10. A telephone voice control system comprising:

25

a public cable network;

a general telephone terminal connected to said public cable network;  
a public radio network;  
a multi-functional terminal connected to said public radio network;  
an extension telephone terminal;

5 an exchange provided with voice transmission/reception means for  
outputting to the outside voice data created resulting from a call between  
said general telephone terminal and said extension telephone terminal and  
inputting the voice data from the outside so that the voice data will be  
transmitted to said multi-functional terminal, and caller number detection  
10 means for detecting a caller number of said multi-functional terminal at  
arrival of the call from said multi-functional terminal; and

a voice storage apparatus provided with voice storage means for  
receiving the voice data from said exchange, voice storage/management  
means for storing the voice data received by said voice storage means,  
15 storage notification means, which when the voice data is completely stored,  
transmits, to said multi-functional terminal, a storage notification in which  
information that enables a connection with said exchange is stored, caller  
number storage means, which maintains a one-to-one correspondence  
between the caller number of said multi-functional terminal and the voice  
20 data stored in said voice storage/management means, and voice playback  
means, which when the connection between said multi-functional terminal  
and said exchange is established, obtains the voice data stored in said  
storage/management from the caller number of said multi-functional terminal  
input from said caller number transmission means to transmit the same to  
25 said exchange.

11. The telephone voice control system according to claim 10,  
wherein when second voice data, created from another call that has  
occurred again between said general telephone terminal and said extension  
5 telephone terminal before said multi-functional terminal is connected to said  
exchange, is stored in said voice storage/management means, said caller  
number storage means maintains a one-to-one correspondence among the  
caller number of said multi-functional terminal, the voice data stored in said  
voice storage/management means and the second voice data, whereby  
10 when said multi-functional terminal is connected to said exchange, said  
voice playback means performs transmission processing of the second  
voice data after the transmission of the voice data.

12. The telephone voice control system according to claim 10,  
15 wherein said voice playback means obtains and transmits to said exchange  
voice data specified during such an operation that said multi-functional  
terminal is connected to said exchange for getting and listening to the voice  
data on said multi-functional terminal.

20 13. The telephone voice control system according to claim 10,  
wherein said voice storage apparatus presents, to said multi-functional  
terminal, the display of a list of voice data stored in said  
storage/management means, and said voice playback means obtains, from  
said storage/ management means, the voice data specified by said multi-  
25 functional terminal from the list so that the voice data will be played back,

and transmits the obtained voice data to said exchange.

14. The telephone voice control system according to claim 10,  
wherein said exchange further includes circuit switching control means for  
5 connecting said general telephone terminal with said voice  
transmission/reception means while the telephone call between said general  
telephone terminal and said extension telephone terminal is in progress,  
whereby a user of said general telephone terminal can listen to the voice  
data stored in said voice storage apparatus.

10

15. The telephone voice control system according to claim 10 further  
comprising voice playback means which, when the number of pieces of  
voice data stored in said storage/management means is more than the  
number of pieces of voice data specified by said multi-functional terminal  
15 from the list so that the voice data will be played back, obtains the voice data  
from said storage means in order of specification made by said multi-  
functional terminal and transmits the same to said exchange before the  
other voice data that have not been specified are played back in order of  
storage in said storage/management means.

20

16. A telephone voice control system comprising:  
a public cable network;  
a general telephone terminal connected to said public cable network;  
a public radio network;  
25 a multi-functional terminal connected to said public radio network;



- an exchange connected to said public cable network; and
- a voice storage apparatus storing voice data and connected to said exchange through a communication path available for TCP/IP communication, wherein when a user of said general telephone terminal or
- 5 said multi-functional terminal listens to a playback of voice data stored in said voice storage apparatus, the voice data is output from said voice storage apparatus to said exchange using the TCP/IP communication protocol.